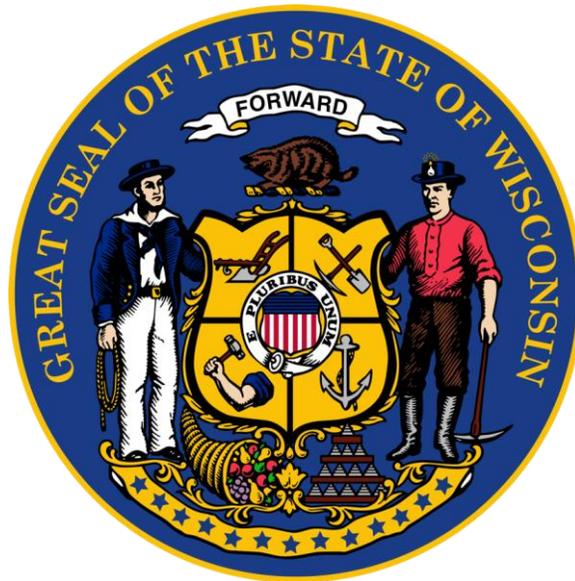


# Wisconsin Statewide NG 9-1-1 Plan



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# 1. Executive Summary

## 1.1 Purpose

The Wisconsin State Interoperability Council established the NextGen 9-1-1 Workgroup under their 9-1-1 Subcommittee to assist in achieving Goal #11 of the Statewide Communication Interoperability Plan by creating a strategic plan for deployment of NextGen 9-1-1.

Much work has been done in many forums to design a 9-1-1 network and system to meet consumer expectations and improve the quality of 9-1-1 service and public safety. The plan is to implement an Emergency Services IP-based network where 9-1-1 “callers” will use either an IP device (e.g. cellular phone, tablet) or a traditional telephone to access and request emergency assistance. This vision is called Next Generation 9-1-1 or NG 9-1-1. The move to NG 9-1-1 will be inevitable.

The purpose of the Wisconsin Statewide NG 9-1-1 Plan is to:

1. Build a cooperative and collaborative mechanism for the advancement of NG 9-1-1
2. Facilitate the migration of Wisconsin’s Public Safety Answering Points to NG 9-1-1 capability
3. Identify, educate, and inform stakeholders
4. Establish the foundation for Wisconsin’s NG 9-1-1 capabilities to ensure that all Wisconsin’s Public Safety Answering Points achieve a minimum standard level of service while also providing an advanced level of service to meet the evolving needs of consumers
5. Articulate a set of goals and objectives that foster innovation for the advancement of public safety and allow deployment of creative solutions

## 1.2 Goals and Objectives

The Plan identifies key goals and objectives for designing NG 9-1-1 service and functionality across Wisconsin. The successful achievement of the Plan’s goals and objectives will result in Wisconsin’s ability to meet the public’s expectations for 9-1-1 service, provide a consistent level of NG 9-1-1 service statewide, and contribute to the security and safety of all of Wisconsin’s residents and visitors.

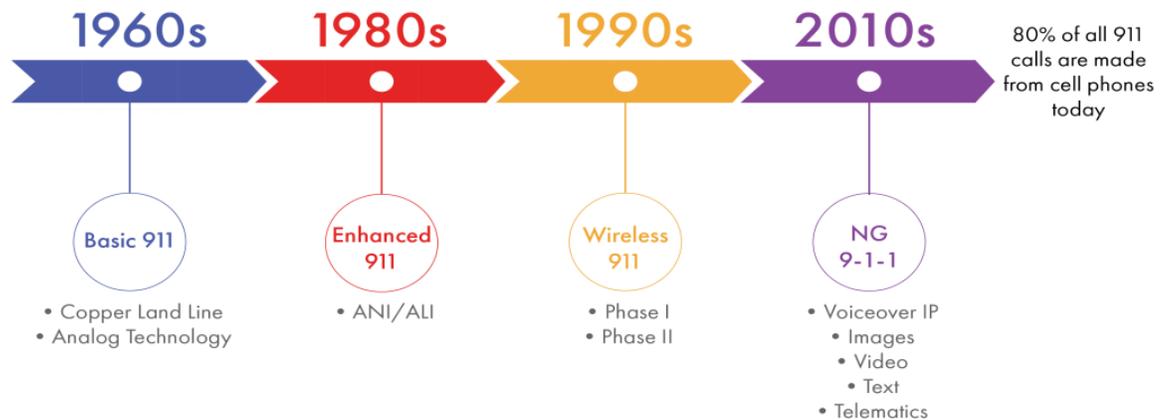
The overarching vision is to ensure that Wisconsin’s citizens and visitors have NG 9-1-1 service no matter where they are calling from or what sort of device they are calling from, regardless of the technology they use, and whether they communicate by voice, text, or other emerging technology.

- Goal 1: Determine statewide NG 9-1-1 requirements
- Goal 2: Create a 9-1-1/NG 9-1-1 governance/authority process
- Goal 3: Select solution provider(s) by function
- Goal 4: Develop the NG 9-1-1 project plan

## 2. Introduction

### 2.1 National Overview of the History and Background of 9-1-1

## 911 Evolution



The Alabama Telephone Company implemented the nation's first 9-1-1 system in Haleyville, Alabama. On February 16, 1968, Alabama Speaker of the House, Mr. Rankin Fite, made the first 9-1-1 call from the Haleyville City Hall. Congressman Mr. Tom Bevill answered the call on a telephone located in the police department.<sup>1</sup> Early 9-1-1 technology had limited capability and 9-1-1 calls had to be delivered to an answering point within the caller's telephone exchange.

This basic 9-1-1 service, as it has since been defined, did not provide any telephone number or location information with the call—it was a voice service only—and the caller had to provide their location and call-back information when talking with the call-taker at the 9-1-1 center (or PSAP). Because there was little correlation between a telephone exchange boundary and the emergency responder's jurisdiction, a 9-1-1 call could land at a PSAP that did not serve the caller's location.

Significant advancement in 9-1-1 technology occurred with the introduction of Enhanced 9-1-1 (E9-1-1) service in the early 1980s. Using existing circuit-switched technology, 9-1-1 calls were selectively routed to the PSAP serving the caller's location. In addition, E9-1-1 delivered the call with the caller's telephone number and address.

By the 1990s, the use of cellular technology increased dramatically. This consumer-driven change posed serious challenges for public safety because landline-based E9-1-1 systems did not have the capability to provide location information for wireless callers. In 1996, the Federal Communications Commission (FCC) released the First Report and Order on Docket 94-102, which mandated wireless E9-1-1 capabilities in two phases. Phase 1 provides the call-back number and the address of the tower that received the wireless 9-1-1 call. Phase 2 provides the call-back number and the caller's approximate location (as measured in longitude and latitude),

<sup>1</sup> Alabama Chapter of NENA Website, "World's First 911 Call," [http://www.al911.org/first\\_call.htm](http://www.al911.org/first_call.htm), April 18, 2008.

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within certain accuracy parameters. Although inherently less reliable than landline technology, wireless E9-1-1 still represents a huge improvement in a PSAP's ability to locate wireless 9-1-1 callers.

Not long after wireless E9-1-1 implementations began to reach maturity at the majority of PSAPs, Voice over Internet Protocol (VoIP) was introduced with consumer services such as Vonage and in various office deployments. VoIP is a technology that allows customers to make a call using an internet connection instead of traditional landlines. In 2005, the FCC ordered that interconnected VoIP providers must supply their customers with E9-1-1 service as a standard and mandatory feature of their services.

The introduction of wireless and VoIP technology did not significantly affect the E9-1-1 system. The change from landline (analog) to wireless (digital) was mitigated by service providers that translated wireless and VoIP 9-1-1 calls to mimic landline calls. This allowed PSAPs to receive the wireless calls without a) expensive updates to their call-handling/dispatch equipment (also known as Customer Premise Equipment or CPE), and b) updates to the phone lines that deliver the calls from the carriers to the PSAPs.

The current E9-1-1 system was never designed to receive calls and data from new and emerging (digital) technologies. As a result, through cumbersome adaptations, E9-1-1 is being asked to perform functions it was not designed to handle, using outdated analog technology to deliver vital information to the PSAP. The reliance on this outdated technology has prevented the delivery of information that could save lives in an emergency like text, video, or telematics (e.g., "automatic collision notification"). Although the current E9-1-1 network has served the public safety industry well over the last 40 years, it must be able to accommodate the data demands of wireless and VoIP E9-1-1, as well as public safety technologies of the future.

In 2004, Congress passed the ENHANCE 9-1-1 Act (the Act) and amended it twice through the NET 9-1-1 Improvement Act of 2008, and the Next Generation 9-1-1 Advancement Act of 2012. The Act as amended established a National 9-1-1 Implementation Coordination Office (ICO), or National 9-1-1 Program, as a joint program of the National Telecommunications and Information Administration (NTIA) in the U.S. Department of Commerce and the National Highway Traffic Safety Administration (NHTSA) in the U.S. Department of Transportation (USDOT). The Act also required the ICO to manage a grant program and create a national plan for migrating to an Internet Protocol (IP)-based emergency services network. The ICO released their plan in September 2009 called, "A National Plan for Migrating to IP-Enabled 9-1-1 Systems."<sup>2</sup>

Each time a new technology is introduced (e.g., wireless or VoIP) or system functions are expanded (e.g. location determination), the existing 9-1-1 network and equipment must undergo significant, convoluted, and costly engineering changes. These changes result in significant time delays and solutions that are not completely effective. The current 9-1-1 network and infrastructure cannot support the technology needs of the future. Delivering additional data on a 9-1-1 call requires a digital network to provide the speed and data capacity to properly deliver the emergent load of information (9-1-1 call, text, picture, video, telematics, and location data) to the appropriate PSAP in the fastest possible manner.

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<sup>2</sup> National E9-1-1 Implementation Coordination Office. "A National Plan for Migrating to IP-Enabled 9-1-1 Systems." [https://www.ntia.doc.gov/legacy/reports/2009/NationalNG911MigrationPlan\\_sept2009.pdf](https://www.ntia.doc.gov/legacy/reports/2009/NationalNG911MigrationPlan_sept2009.pdf), September 2009.

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In summary, the explosive growth in communications technology is forcing 9-1-1 Authorities and their respective PSAPs to change how they operate in order to provide equivalent or improved services to consumers. To support these trends, 9-1-1 Authorities and PSAPs must migrate to a new digital platform that enables these current and future communications devices to access E9-1-1 service through its digitally native state. As the rest of the U.S. moves to an IP-based network, the current analog E9-1-1 system will continue to lag further behind technologically, with continued degradation and the inability to meet the demands and needs of its residents and tourists. Consumers are willingly adopting these technologies and applying them to their everyday communications, thus reasonably expecting to be able to use them to communicate with 9-1-1.

## 2.2 Overview of the History and Background of 9-1-1 in the State of Wisconsin

Milwaukee County was the first county in the state to implement E9-1-1 service in 1989, and Iron County was the last county to implement E9-1-1 service in 2016. In 2003, the Wisconsin Legislature implemented a supplemental wireless surcharge to reimburse wireless service providers and counties for their costs to implement wireless E9-1-1 service. The wireless surcharge was discontinued in 2008, and the wireless E9-1-1 program expired on April 1, 2009.<sup>3</sup>

Although the surcharge was temporary, the greatest progress made in wireless deployment occurred during those years. In order to continue to progress and ensure the continued safety of Wisconsin's public, the State will need to address funding, governance, and coordination in relation to 9-1-1 services to allow for a smooth transition to NG 9-1-1 without compromising the current services experienced by the public.

## 3. Current 9-1-1 Environment in Wisconsin

### 3.1 Current Statutory and Regulatory Environment and Program Structure

The Wisconsin Legislature established 9-1-1 as the statewide emergency services telephone number in §256.35.<sup>4</sup> Local governments are authorized, but not required, to establish either a Basic or Enhanced 9-1-1 system. The mechanism for oversight is provided through a contract with a local governmental unit and the 9-1-1 system service provider (SSP), which may be the Incumbent Local Exchange Carrier (ILEC) or a Competitive Local Exchange Carrier (CLEC). Generally, the SSP provides the network, database, and network monitoring and maintenance services, and is authorized through the contract to charge its landline users a monthly fee (up to 40 cents) to offset the recurring costs associated with providing such equipment and services.

To date, there is little to no statutory or regulatory mechanism in Wisconsin that would adequately facilitate the implementation and maintenance of a consistent and secure NG 9-1-1 system. This has led to a lack of coordination at the state, county, and local level that has caused significant delays in NG 9-1-1 planning. For example, several agencies have attempted to identify the number of PSAPs in the state of Wisconsin with varying success and a range of estimates. According to the "2016 National 911 Progress Report", Wisconsin was one of two

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<sup>3</sup>Public Service Commission of Wisconsin Website, "Frequently Asked Questions Regarding 911 Service in Wisconsin," <http://psc.wi.gov/utilityinfo/tele/newsInfo/n11FAQ.htm>, November 3, 2016.

<sup>4</sup><https://docs.legis.wisconsin.gov/statutes/statutes/256/35>

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reporting states that were unable to provide this information.<sup>5</sup> This has led to a delay in cost estimates and other key elements that could severely impact budgeting, implementation, and maintenance of an NG 9-1-1 system.

### 3.2 PSAP Integration with Emergency Communications, Telecommunications, and Information Networks

At present, most Wisconsin PSAPs function independently of each other. There is limited integration of E9-1-1 with other related public safety systems such as Computer Aided Dispatch, Radio, Recording, and Records Management Systems. PSAPs not served by the same Selective Router are not able to transfer 9-1-1 calls without losing the caller's location and other premise information. This demonstrates the need for statewide coordination in relation to NG 9-1-1 planning and implementation to ensure interoperability amongst PSAPs and other public safety systems.

In addition, it is very costly and/or difficult for individual PSAPs to coordinate with all of the different telecom carriers (wireline, wireless, VoIP) in order to aggregate calls digitally into the PSAP. As a result, many states or regions have gone out to bid for a service provider to aggregate the calls in a way that would save costs.

## 3.3 Economics

### 3.3.1 Current Funding for 9-1-1 Service

Wisconsin does not have statewide funding for E9-1-1 service as it exists today. There are two statutorily-imposed fees in place to fund local E9-1-1 service in Wisconsin, but neither fee is collected directly by local government. The first is a landline 9-1-1 fee (up to 40 cents per line), but that has been established as a "bill and keep" practice; landline providers both collect and keep the funds as reimbursement. The second fee is a monthly surcharge of 75 cents per line for all telephone connections, including landline, wireless, and VoIP lines. In addition, pre-paid wireless service is charged 38 cents per transaction (each time a customer purchases a pre-paid phone or pre-paid minutes). These charges are collectively known as the Police and Fire Protection Fee.

The landline 9-1-1 fee includes the telephone network expenses related to 9-1-1 for each county. These are deposited as a pooled fund. Participating carriers charge a fee to recover the full cost of the amount required to fill the pool. Each carrier pays into the revenue side of the pool and takes from the pool the amount of its own expenses in providing 9-1-1 services. Each county must enter into a contract with the participating telephone companies within that county, so the amount of the surcharge varies from county to county based on the network costs and the number of billable landlines. General oversight over these contracts and the landline 9-1-1 fee currently fall within the duties of the Public Service Commission (PSC).<sup>6</sup>

Since the landline 9-1-1 fee is dedicated to reimbursing 9-1-1 service providers only, all other 9-1-1 costs at the PSAP, such as equipment, training, and personnel, is afforded through county

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<sup>5</sup> U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA). "2016 National 911 Progress Report." <https://www.911.gov/pdf/National-911-Program-2016-ProfileDatabaseProgressReport-120516.pdf>, pg 51.

<sup>6</sup> See Wis. Stat. § 256.35

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or municipal budgets and forces E9-1-1 service to compete with other publicly-funded services for limited local funding. Due to the lack of dedicated 9-1-1 funding to county and local PSAPs, the transition costs to implement NG 9-1-1 will be difficult, especially smaller dispatch centers that can barely afford 9-1-1 expenses today. NG 9-1-1 costs could be shared amongst the state, county, and local levels to guarantee the same level of public safety service across all of Wisconsin.

The Police and Fire Protection fee was implemented by the state legislature in 2009.<sup>7</sup> This fee is not available to emergency service providers or telecommunications providers. Instead, revenue is deposited to a designated portion of the state's general fund and appropriated through the state's budgeting procedures.

As of September 2015, the Police and Fire Protection Fee represented about \$52 million/year in the state general fund.<sup>8</sup> Revenue from this fee is not dedicated to public safety or 9-1-1 service, but is part of the state's "shared revenue" payments to counties, cities, towns, and villages in the form of unrestricted aid. Opponents of this fee claim that it is not used for direct support of public safety and 9-1-1 service. However, supporters state that revenue from this fee indirectly supports public safety by providing additional revenue to local governments, where public safety is one of the largest local expenditures.

Notwithstanding the fact that the two statutorily-imposed fees are not used directly for 9-1-1 purposes, the current prepaid wireless fee of 38 cents per transaction does not account for inflation or the number of minutes being purchased. Most states have set their prepaid wireless fee at a percentage of the value of the prepaid minutes. In 2016, the 9-1-1 districts in Louisiana were able to raise their prepaid fee to three percent (3%) of the value of the prepaid minutes. By setting the fee as a percent of sales, revenue will increase with inflation and with the value of the minutes.

### 3.3.2 Next Generation 9-1-1 Considerations

Funding and Governance structures are primary reasons why NG 9-1-1 activity varies across the country. Funding for statewide NG 9-1-1 implementation is a challenge for a variety of reasons, such as competing budgetary requirements, the unwillingness to approve tax or fee increases, and 9-1-1 fee revenue being used for non-9-1-1 purposes. In addition, some states are bound by existing long-standing contractual obligations based on old technology. The cost of terminating such contracts can be prohibitive and may prevent some jurisdictions from implementing NG 9-1-1 on their own.

A key aspect and the essential backbone of any NG 9-1-1 system is the Emergency Services IP-based Network (ESInet) which connects to PSAPs and allows for the seamless transfer of data received from a 9-1-1 call. The ESInet replaces the traditional analog network seen in today's PSAPs which will soon be obsolete. According to the NG 9-1-1 Workgroup of the Wisconsin Interoperability Council, AT&T has estimated that an ESInet in Wisconsin could cost \$12.5 million, or 18 cents per capita. This estimate does not include a volume discount. Additionally, utilizing existing infrastructure and contracts might reduce this cost.

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<sup>7</sup> See Wis. Stat. § 196.025(6)

<sup>8</sup> Wisconsin Interoperability Council, NG 9-1-1 Workgroup, "The Need for 911 Modernization in WI" White Paper, September 2016.

Successful implementation and reliable operation of a Wisconsin State NG 9-1-1 System will require significant planning and a permanent, adequate, and dedicated funding source. Sound state level governance has also been a key component in successful NG 9-1-1 system implementations in other states. The establishment of a statewide coordinated effort to implement an NG 9-1-1 system is believed to be a stable, sound, and affordable approach rather than having each PSAP implement its own local system which could also severely impact overall interoperability.

### 3.3.3 Current Funding Issues

There is currently no dedicated state revenue source to fund 9-1-1 or NG 9-1-1 services in Wisconsin.

In addition to building out and operating an NG 9-1-1 system, every PSAP in the state will need to purchase NG 9-1-1 call-handling equipment at a cost of approximately \$25 million. This cost would have to be repeated every five years.<sup>9</sup> Some PSAPs have purchased NG 9-1-1 ready call-handling equipment in the last two years, and other PSAPs must replace theirs in the near future because their equipment is obsolete, outdated, and unsupported. For most PSAPs, current funding is inadequate to cover the costs of upgrading call-handling equipment.

Another funding issue is personnel training. According to a 2016 PSAP survey by the Badger State Sheriff's Association (BSSA), 86% of responding counties provide on-the-job training that is specific to their agency.<sup>10</sup> However, current on-the-job training does not include standardized training for emerging technology. Unfunded yet required, call-takers and dispatchers will need extensive training in order to process this new and unfamiliar content presented with NG 9-1-1. This will require a revision in current standard operating procedures as well as additional training hours and funding associated with personnel training.

### 3.3.4 Economies of Scale

The advanced technology and information transport afforded through NG 9-1-1 will allow PSAPs to leverage virtual consolidation, where call-handling equipment could be hosted by a few geographically diverse PSAPs, by the State and its data centers, or remotely by vendors (in a manner similar to Software as a Service (SaaS)).<sup>11</sup> The \$12.5M estimate for an ESInet identified in Section 3.3.2 and the \$25M every five years for PSAP call-handling equipment may be reduced with coordinated or centralized approaches. For example, the State Chief Information Officer (CIO), housed in the Wisconsin Department of Administration, has roughly estimated \$7M annually to build and maintain an ESInet by leveraging the use of Wisconsin's Badger Converged Network or "BadgerNet" and state data centers. Further study and careful comparison of the above estimates should be done to ascertain a clear comparison to a private vendor offering.

Similarly, regional or statewide acquisition and implementation of call-handling equipment could reduce the local PSAPs' collective costs to something less than the \$25M estimated. It should

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<sup>9</sup> The \$25M costs estimate and five year replacement cycle is based on a 2016 PSAP survey by the Wisconsin Department of Administration.

<sup>10</sup> Badger State Sheriff's Association (BSSA). "Dispatch Center Interoperable Procedural and Communications Capability Survey." December 2016, pg 5.

<sup>11</sup> Wisconsin Interoperability Council, White Paper.

also be noted that the estimates above do not include costs for Geographical Information Systems (GIS) data elements, cyber security, data storage management, administrative costs for a 9-1-1 office/board, and other operational costs that must be considered for a successful NG 9-1-1 system.

Nationally, a state-level approach to NG 9-1-1 has proven the most efficient in cost sharing, coordination, and streamlining implementation as opposed to a regional or local approach. A state-level approach that allows for cost sharing amongst the state, counties, and locals will give incentive for local buy-in that will be essential for successful NG 9-1-1 implementation for a home rule state such as Wisconsin.

A 5-Year cost estimate for Network, Text to 9-1-1, and PSAP CPE equipment was put together using data collected from PSAPs, other state Request for Proposals (RFPs) and NG 9-1-1 plans, and discussions with industry leaders (see Appendix A). This cost model demonstrates cost savings that can be achieved based on 100% local participation in state-hosted CPE solutions and networks. This cost model also estimates cost savings for different sized PSAPs in the state.

An important note to the cost model is that it is based on a fully implemented statewide ESInet. When building out a statewide ESInet, the current analog 9-1-1 systems must also continue to be funded during the transition to ensure 9-1-1 capabilities are not affected.

### 3.4 Current 9-1-1 Technology

The Public Service Commission of Wisconsin has identified six landline telecommunications providers in the state. The following is a list of the providers and the number of counties in which they provide service:

AT&T	36
CenturyLink	14
Frontier	16
TDS Telecom	4
Solarus	1
Vernon Telephone Cooperative	1

Wisconsin does not currently have statewide coordination of 9-1-1 service or efforts. This lack of coordination, coupled with the lack of statewide E9-1-1 funding, has contributed to the prolonged 27-year rollout of E9-1-1 service across the state. The current 9-1-1 network in the state is a patchwork of three separate networks maintained by various service providers due to the fact that landline E9-1-1 service was implemented on a county-to-county basis. The current 9-1-1 network is less of a communications system than it is a fragmented collection of local and regional communications networks. This has resulted in a number of networks that are connected to a variety of PSAPs with varying equipment and capabilities.

Although reliable, Wisconsin's 9-1-1 network has not maintained pace with today's technology and is currently unable to provide consistent service to emerging communications devices. Because of the separate networks in use today, a PSAP may not always be able to transfer the data associated with a 9-1-1 call to a PSAP on another network. With this current limitation, there are significant and unavoidable time delays associated with having to obtain location information from the caller. Those delays affect the overall quality of 9-1-1 service and the ability

of responders to arrive on scene in a timely manner. Inclusion of Automatic Number Identification (ANI) and Automatic Location Information (ALI) on all transferred 9-1-1 calls is a feature of NG 9-1-1 and will improve overall PSAP process times.

Our citizens use high-speed devices to access high-speed networks to go about their daily lives. Yet, most 9-1-1 calls made in Wisconsin travel along analog circuits at least once before reaching an emergency telecommunicator. Critical data links, such as the ALI lookups operate in circuits running in the very slow 9,600 baud rate.<sup>12</sup> In addition, the current E9-1-1 system in place has limited messaging capability (query and response) and limited data content. The system is further constrained by the limited capabilities of separate 9-1-1 networks found throughout the state and disparate PSAP CPE.

The explosive growth in technology is forcing 9-1-1 authorities and PSAPs to change the way they operate in order to provide equivalent service to consumers. To support these trends, the 9-1-1 platform must enable new communications devices to access E9-1-1 service. Delivering additional data on a 9-1-1 call requires a digital network to provide the speed and data capacity—i.e., bandwidth—to deliver the 9-1-1 call (or text or video) and location data to the appropriate PSAP. The current analog system needs to be replaced with a solution that will provision all 9-1-1 calls and related data directly to an IP-based network. Wisconsin is behind the times and must maintain pace with emerging technology in order to provide its residents and visitors with IP-based 9-1-1 service.

## 4. The Future Environment: Next Generation 9-1-1

### 4.1 Technological Advancements

NG 9-1-1 is an effort to enhance 9-1-1 capabilities via a phased approach by improving the hardware, software, data, transport facilities, and operational policies and procedures to process various types of emergency calls including the services of non-voice (multimedia or text) messages. NG 9-1-1 can also acquire and integrate additional data useful to call routing and handling; deliver calls and messages with corresponding data to the appropriate PSAP; and support data and communications needs for coordinated incident response and management.

NG 9-1-1 is a secure, open-architecture (i.e. non-proprietary), and managed IP-based network used to process and manage new communications devices and services such as text messaging, data transfer, and video delivery. Once fully implemented, NG 9-1-1 will:

1. Minimize operating costs
2. Optimize long-term costs
3. Facilitate 9-1-1 call handling and data sharing
4. Provide equal access for all 9-1-1 callers, including the deaf and hard-of-hearing community
5. Resolve infrastructure limitations
6. Replicate the reliability and security of legacy networks
7. Improve functionality
8. Make greater use of information from outside agencies
9. Allow emergency responders to be better prepared for situations prior to arriving on the scene, potentially saving more lives

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<sup>12</sup> Wisconsin Interoperability Council, White Paper.

10. Provide significant benefits in disaster planning and recovery
11. Facilitate and enable Incident/Mutual Aid collaborations and overall interoperability of PSAPs
12. Provide almost-instant backup and overflow during crises, periods of high call volume, and planned and unplanned outages
13. Support a variety of consumer devices
14. Support connectivity with outside organizations, with the ability of each PSAP to quickly change or add connections in response to emergencies, and
15. Provide the ability to transfer calls across PSAPs with both voice and data
16. Provide the ability for call access and remote backup between and among PSAPs

An ESInet is the core of NG 9-1-1 and is needed to provide NG 9-1-1 service delivery. The National Emergency Number Association (NENA) has developed what is known as the i3 Standard which defines the ESInet and its interfaces.<sup>13</sup> The ESInet is the IP transport infrastructure upon which independent application platforms and core functional processes can be deployed. An ESInet will provide for broadband speed transmissions allowing prioritized, efficient, and speedy delivery of texts and pictures that responders at the PSAP and in the field will use for safer and more effective field operations. Although not an exhaustive list of deliverables, service highlights include the ability to:

1. Deliver text-to-9-1-1 in a reliable way with as high priority as a 9-1-1 call, particularly for those in the deaf and hard of hearing community. (Some interim text-to-9-1-1 mechanisms now exist, but rely on public internet and are subject to delays and service outages)
2. Deliver video-to-9-1-1
3. Provide for 9-1-1 call load sharing among PSAPs during emergencies; for example, when a storm overloads one PSAP, a neighboring PSAP can receive overflow calls, thereby ensuring that all 9-1-1 requests for service are answered by a public safety call-taker/dispatcher in a timely manner
4. Provide accurate, reliable, and timely location information for dispatchers and first responders, especially for wireless callers

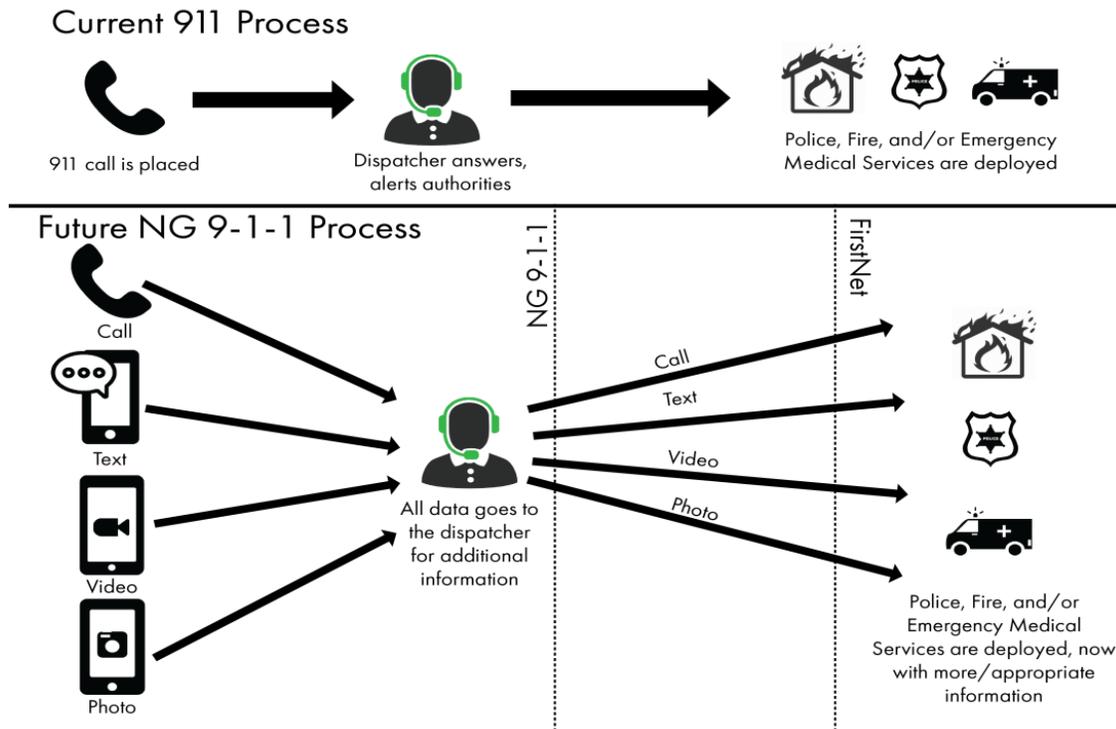
Of course, as is true of most progress, there is a downside that must be managed. Cyber risks are inherent in systems that are open to the internet, such as an ESInet. This speaks to the wisdom of statewide coordination, in that cyber security may be very difficult to provide if done PSAP-by-PSAP. The FCC Taskforce on Optimal PSAP Architecture (TFOPA) explains in great detail the cyber risks that will be faced and must be managed in NG 9-1-1. It even recommends a state-level Emergency Communications Cybersecurity Center (EC<sup>3</sup>).<sup>14</sup> Like the economies of scale, this presents another reason for statewide coordination via a state 9-1-1 office, which many states already have.

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<sup>13</sup> National Emergency Number Association (NENA). *NENA Detailed Functional and Interface Standards for the NENA i3 Solution*. NENA-STA-010.2-2016. Updated September 2016.

[https://c.ymcdn.com/sites/www.nena.org/resource/resmgr/standards/NENA-STA-010.2\\_i3\\_Architectu.pdf](https://c.ymcdn.com/sites/www.nena.org/resource/resmgr/standards/NENA-STA-010.2_i3_Architectu.pdf)

<sup>14</sup> Federal Communications Commission (FCC). *Taskforce on Optimal PSAP Architecture (TFOPA) Adopted Final Report*. January 2016, pg 57-60. [https://apps.fcc.gov/edocs\\_public/attachmatch/DA-16-179A2.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DA-16-179A2.pdf)



As seen in the graphic above, NG 9-1-1 would provide the opportunity for increased and expedited information flow to the first responder community. The implementation of NG 9-1-1 would allow for calls, texts, videos, and other data to be sent from the public to the PSAP via an NG 9-1-1 ESInet. Similarly, the First Responder Network Authority (FirstNet) was established in 2012 to create a broadband network that is dedicated to public safety and will be essential for PSAPs to communicate with the first responder community. An ESInet will need to be connected to and interoperable with FirstNet to allow data from the public to be relayed to first responders and the rest of the public safety community when needed. In essence, NG 9-1-1 will be used to transmit the influx of data from the community to the PSAP, and FirstNet will be used to send the outflow of data from the PSAP to the first responders.

## 4.2 Implementation Progress

NG 9-1-1 efforts in the U.S. have been underway for approximately 10 years and many states have already moved to an ESInet. No PSAP in Wisconsin has arranged access to an ESInet due to the lack of availability (ESInet simply does not exist) and the cost to implement a stand-alone IP network.

Additionally, only a select few of Wisconsin’s PSAPs have implemented the interim “text-to-9-1-1” service as specified by the FCC. While these messages currently comprise a very small percentage of 9-1-1 traffic and an even smaller percentage of emergency requests, this form of communication is much more realistic for persons with speech and/or hearing challenges. A class-action lawsuit in Arizona is highlighting the issue by suggesting text-to-9-1-1 should be available in the state.<sup>15</sup> Effective and true text-to-9-1-1 service needs ESInet technology to assure prompt and accurate message delivery and location. Current systems deployed in

<sup>15</sup> Enos et al v. State of Arizona et al, Case No. CV-16-00384 PHX JJT (AZ).



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### 4.3 Geographical Information Systems (GIS) and NG 9-1-1

Geospatial technologies (hardware, software, data and staff) are critical components of the overall NG 9-1-1 system. Because GIS will support potentially life-saving situations, requirements for data accuracy, standardization, timeliness, and completeness are generally much higher than normal GIS and land information functions already operating within the state. Accurate GIS data is used to validate the location of emergency calls and to route the emergency calls to the proper PSAP. At the PSAP, GIS data layers are also used to display a caller's location within the tactical PSAP mapping system, and to provide valuable life-saving information to emergency response personnel. To accomplish this, the preparation and on-going maintenance of GIS data for use in NG 9-1-1 begins at the local level and must be undertaken by qualified and competent local government staff. Leveraging and extending existing land information activities at the local level provides an excellent opportunity for overall cost savings while maintaining high quality data.

At the state level, local GIS data layers must be collected and integrated into standardized database structures for inclusion in the location validation and PSAP routing services to support distributed call routing and mapping from different jurisdictions. Funding is needed at all levels to create and maintain standardized GIS layers, validate new addresses, and maintain statewide databases. A governance body or structure is needed to establish standards for local GIS data, advise on distribution of funding to data producers, and to help educate all stakeholders on NG 9-1-1 standards and work processes. A coordinated statewide approach to developing GIS data and services needed by the NG 9-1-1 system will yield significant cost savings through decreased redundant efforts, higher quality through standardization of data and business processes, and centralized management and distribution of geospatial products to users. An uncoordinated, piecemeal approach will have none of these cost controlling advantages. Ongoing GIS efforts in other states and at the federal level can provide guidance as Wisconsin begins planning, design and implementation of its NG 9-1-1 system.

## 5. Goals and Objectives for NG 9-1-1 in 2017-2018

The transition to NG 9-1-1 will occur in phases and require extensive and costly changes. The concept of a complete end-to-end NG 9-1-1 system is often difficult to comprehend, which is compounded by the fact that implementation will take years and will require the co-existence of the legacy network during a transition phase that may be lengthy.

There are many alternative paths for the migration from the current 9-1-1 system to NG 9-1-1. Coordination among participating entities during transition is important but also complex and challenging. Because the existing network will have to co-exist with the NG 9-1-1 network, operating costs during the transition will be higher. NG 9-1-1 involves shared networks, shared databases, and shared applications. Because of the interconnected and shared nature of NG 9-1-1, implementation is more complex and requires collaboration among all the stakeholders in a way that was not necessary in the past.

Policy and governance issues cannot be addressed by individual local jurisdictions or individual 9-1-1 authorities. NG 9-1-1 requires establishing a collaborative governance framework that will enable such a shared, interconnected, and interoperable system of systems to come into existence. The review of all historical, current, and potentially new legislation, rules, regulations, tariffs, and other pertinent statutes related to or involving 9-1-1 service should take place in collaboration with the appropriate stakeholders, such as local 9-1-1 Authorities. Any

recommended changes or updates that are needed to facilitate and allow NG 9-1-1 implementation should be initiated as appropriate.

It is important for policy makers to recognize that NG 9-1-1 implementation requires a statutory and regulatory framework that assures the continued availability, quality, and sustainability of 9-1-1 service throughout the state. One of the key lessons learned from past 9-1-1 implementation is the importance of statewide coordination to maintain focus and priorities for funding and support of 9-1-1 emergency services. By applying this lesson to NG 9-1-1 at the state level, elected officials and policy makers can help lead statewide efforts by appointing a single authority for deployment.

A state-level authority (as seen in Appendix B) that is comprehensive and accommodates all forms of originating telecommunications options will be required for successful NG 9-1-1 implementation. Legislation that clearly defines the role of the statewide 9-1-1 entity should facilitate the coordination of NG 9-1-1 service networks statewide. In addition, the legislation should also authorize the statewide authority to support all NG 9-1-1 operational functions. Other benefits of statewide coordination include improved service uniformity and quality across the entire state to every county, and potential reduction in costs associated with implementation of a NG 9-1-1 system. It will also help ensure the security and reliability of an ESInet. Finally, statewide coordination can focus efforts, maintain priorities, help ensure the achievement of NG 9-1-1 goals in a timely manner, and help ensure that every resident in the state will have equal access to the NG 9-1-1 System.

The following are goals and objectives for NG 9-1-1 in Wisconsin:

- Goal 1: Determine Statewide Requirement for NG 9-1-1
  - Identify major functional requirements
  - Collect initial PSAP data
  - Validate data
  - Publish data
- Goal 2: Create a 9-1-1/NG 9-1-1 Governance/Authority Process
  - Create NG 9-1-1 governance/authority group for implementation and program administration
  - Identify initial source of funding for planning, implementation, system administration, and security
  - Establish segregated and sustainable source(s) of funding for on-going maintenance for NG 9-1-1 at the state and PSAP level
- Goal 3: Select Solution Provider(s) by Function
  - Review state hosted solution (end to end services)
  - Review other vendor solutions by function
  - Status quo
  - Select functional solution providers
- Goal 4: Develop the NG 9-1-1 Project Plan
  - Analyze requirements
  - Determine costs
  - Develop phased implementation timeline

Further details on the goals and objectives outlined in this section are available in Attachment 1.

## 5.1 Tracking Progress

This NG 9-1-1 Plan is intended to establish a vision for the statewide implementation of NG 9-1-1 services. Because this Plan serves as a strategic planning guide for the future, this Plan must remain flexible to account for unforeseen circumstances or events. This Plan is intended to foster collaboration and should be used on an ongoing basis.

The goals established in this Plan are high-level, general directions, and the objectives for achieving the goals are concise, specific, and measurable. As goals and objectives are achieved, they should be documented in this Plan. In addition, any changes to this Plan should be documented per the form established in Attachment 2 of this report. Section 7 provides information on how updates should be documented.

## 6. Resource Allocation

Staff members in other states' 9-1-1 offices are responsible for executing their state's Strategic Plan and keeping the Plan updated as progress is made. In Wisconsin, the responsibility is somewhat less clear because there is no state office responsible for 9-1-1 service. Current staffing levels would not be adequate to implement a NG 9-1-1 system in Wisconsin as there is no state agency assigned to 9-1-1 in this capacity. Without the proper governance body and/or state agency, NG 9-1-1 will continue to be a challenge for Wisconsin.

By Wisconsin Statute 16.9645(2)(f), the Wisconsin State Interoperability Council has established a 9-1-1 Subcommittee, which has created a NG 9-1-1 Workgroup to assist with developing a Wisconsin statewide NG 9-1-1 Strategic Plan.<sup>17</sup> This group has been working diligently to move the state forward by attempting to improve 9-1-1 service. Membership and participation on the workgroup includes but is not limited to:

<b>Name</b>	<b>Agency</b>
<b>Marcie Rainbolt</b>	Wisconsin Counties Association
<b>Chief Jody Ward</b>	Wisconsin League of Municipalities (Wisconsin Dells Police Dept.)
<b>Chief Rich Buntrock</b>	Wisconsin Chiefs of Police Association (Seymour Police Dept.)
<b>Sheriff Dale Schmidt</b>	Badger State Sheriff's Association (Washington County Sheriff)
<b>Fire Chief Robert Whitaker</b>	Wisconsin Fire Chiefs Association (North Shore Fire)
<b>Randy Pickering</b>	MABAS Communications Committee (MABAS Wisconsin)
<b>Shelly Sandry</b>	Wisconsin Dept. of Justice (Training & Standards Bureau)
<b>Angie Dickison</b>	Wisconsin Public Service Commission
<b>Rich McVicar</b>	Wisconsin APCO (Dane County Public Safety Communications)
<b>Ret. Lt. Bob Frank</b>	Wisconsin NENA (Crawford County Sheriff's Department)
<b>Bob Grebenc</b>	AT&T

<sup>17</sup> <https://docs.legis.wisconsin.gov/statutes/statutes/16/VI/9645?view=section>

Name	Agency
Bill Esbeck	Wisconsin State Telecommunications Association
Chris Diller	State GIS Subject Matter Expert (Wisconsin Dept of Military Affairs)
Andy Faust	Local GIS Subject Matter Expert (NC Wisconsin Regional Planning Commission)
Justin Conner	Wisconsin Land Information Association
August Neverman	Cyber Security Subject Matter Expert (Brown County)
John Dejung	Southwest Region Representative (Dane County Public Safety Communications)
Gary Bell	Southeast Region Representative (Waukesha County Communications)
Mike Bouchard	East Central Region Representative (Outagamie County Sheriff)
April Schoolcraft	West Central Region Representative (Jackson County)
Stacy Hopke	North West Region Representative (Burnett County Sheriff)
Ken Korten Hof	North East Region Representative (Oneida County Sheriff)
Cullen Peltier	9-1-1 Subcommittee/NG 9-1-1 Workgroup Chair (Brown County Public Safety Communications)

## 7. Updating the Plan

Changes to the Plan are documented in Attachment 2 in the following manner:

- The Plan is given a new version number following the annual review and update cycle, or following any necessary interim update. The number given at that time is a full number, e.g., 1.0, 2.0 etc.
- Any changes made to the Plan on an interim cycle are given a fractional number, e.g., 1.1 or 1.2, etc.
- The date field documents the date of that change
- The “description of change” field documents the nature of the change and the page and/or section affected

## 8. Mechanism(s) for Overseeing and Managing the State’s 9-1-1 System

Appendix B illustrates the suggested organization of a state 9-1-1 office and board for Wisconsin. The following is a recommendation from NHTSA:

*The establishment of a State-level entity with statewide authority to address necessary State level functions and responsibilities, with a clearly defined 9-1-1 program coordination role, is critical to maximizing the capabilities of 9-1-1 systems. State-level 9-1-1 authority that is comprehensive and accommodates all forms of originating telecommunication services will be required for NG9-1-1 implementation. Legislation defining the role of the State 9-1-1 entity should facilitate the coordination of 9-1-1*

*service networks statewide, and include the authority to support those State-level system operational functions necessary to ensure a statewide 9-1-1 system of systems.*<sup>18</sup>

Nationally, there are seven recognized categories for state 9-1-1 authority. Each category presents its own set of strengths and weaknesses.<sup>19</sup>

Categories:

1. State-level 9-1-1 authority that owns or operates a single statewide system with a single, state-operated PSAP
2. State-level 9-1-1 authority that owns/operates a single statewide system, and funds and operationally supports PSAPs (PSAPs are operated by state, local, county, or regional entities)
3. State-level 9-1-1 authority with statewide geographic planning/coordination/funding responsibility for full scope of 9-1-1
4. State-level 9-1-1 authority with less than statewide geographic planning/coordination/funding responsibility for full scope of 9-1-1
5. State-level agency or Board with statewide responsibility for limited aspects of 9-1-1 (generally wireless)
6. Informal state-level 9-1-1 focus or coordination mechanism
7. No state-level planning or coordination mechanism of any sort

For this Plan, the NG 9-1-1 Workgroup is recommending Category 3 for Wisconsin's state 9-1-1 system due to Wisconsin's unique "home rule" at the local level. Currently, Wisconsin falls somewhere between Categories 5 and 7.

## 9. Mechanism for Initiating and Monitoring an Implementation Project

An Implementation Plan/Project should be developed and monitored by the mechanism overseeing a state's 9-1-1 system. Due to the uncertainties surrounding Wisconsin's 9-1-1 coordinating effort, this section may not be applicable until Goal #2 has been completed.

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<sup>18</sup> U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA), *Guidelines for State NG9-1-1 Legislative Language*, "1.B. State 9-1-1 Office and State 9-1-1 Coordinator," pg 5.

<sup>19</sup> U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA), "Model State 9-1-1 Plan," pg 51.

## Attachment 1—NG 9-1-1 Plan Status Report

Goal 1					
Determine Statewide Requirements for NG9-1-1					
				Completion Date	
Objective #	Description	Owner	Goal	Actual	
1.1	Identify Major Functional Requirements	PSAPs			
a.	GIS	PSAPs			
b.	Cyber-Security	PSAPs			
c.	Network (ESINet)	PSAPs			
e.	Monitoring	PSAPs			
f.	Applications	PSAPs			
g.	Training	PSAPs			
h.	Outreach	PSAPs			
i.	Call Handling	PSAPs			
j.	Storage Management	PSAPs			
k.	Audit/Compliance Federal and State	PSAPs			
l.	Redundancy/Diversity	PSAPs			
m.	Disaster Recovery	PSAPs			
1.2	Collect initial PSAP Data	DOA			
1.3	Validate Data	DOA / RLIC's			
1.4	Publish Data	NG 9-1-1 Workgroup/IC			

Goal 2					
Create a 9-1-1/NG 9-1-1 Governance/Authority Process					
				Completion Date	
Objective #	Description	Owner	Goal	Actual	
2.1	Create NG 9-1-1 Governance/Authority Group for implementation and program administration	Legislative, PSAPs			

2.2	Identify initial source of funding for planning, implementation, system administration, and security	Legislative, PSAPs		
2.3	Establish segregated and sustainable source(s) of funding for on-going maintenance for NG 9-1-1 at the state and PSAP level	Legislative, PSAPs		

Goal 3					
Select Solution Provider(s) by Function					
				Completion Date	
Objective #	Description	Owner	Goal	Actual	
3.1	Review State Hosted Solution (End to End Services)	PSAPs			
3.2	Review Other Vendor Solutions by Function	PSAPs			
3.3	Status Quo	PSAPs			
3.4	Select Functional Solution Providers	PSAPs			

Goal 4					
Develop a NG 9-1-1 Project Plan					
				Completion Date	
Objective #	Description	Owner	Goal	Actual	
4.1	Analyze Requirements	Solution Providers, PSAP, NG 9-1-1 Governance/Authority Group			
4.2	Determine Costs	Solution Providers, PSAPs, NG 9-1-1 Governance/Authority Group			
4.3	Develop Phased Implementation Timeline	Solution Providers, Agency, NG 9-1-1 Governance/Authority Group			

## Attachment 2—Document Change History

Version	Publication Date	Description of Change
1	5/11/2017	Original Publication

## Attachment 3—Definitions<sup>20</sup>

<b>Automatic Location Identification (ALI)</b>	The automatic display at the PSAP of the caller's telephone number, the address/location of the telephone and supplementary emergency services information of the location from which a call originates.
<b>Automatic Number Identification (ANI)</b>	Telephone number associated with the access line from which a 9-1-1 call originates.
<b>Basic 9-1-1 (landline)</b>	An emergency telephone system that automatically connects 9-1-1 callers to a designated answering point. Call routing is determined by the originating central office only. Basic 9-1-1 may or may not support ANI and/or ALI.
<b>Local Exchange Carrier (LEC)</b> Includes Incumbent Local Exchange Carriers (ILEC), Competitive Local Exchange Carriers (CLEC), etc.	A Telecommunications Carrier under the state/local Public Utilities Act that provides local exchange telecommunications services.
<b>Customer Premise Equipment (CPE)</b>	Communications or terminal equipment located in the customer's facilities – Terminal equipment at a PSAP.
<b>Emergency Services Internet Protocol Network (ESInet)</b>	An ESInet is a managed IP network that is used for emergency services communications, and which can be shared by all public safety agencies. It provides the IP transport infrastructure upon which independent application platforms and core functional processes can be deployed, including, but not restricted to, those necessary for providing NG 9-1-1 services. ESInet may be constructed from a mix of dedicated and shared facilities. ESInet may be interconnected at local, regional, state, federal, national and international levels to form an IP-based inter-network (network of networks).
<b>Enhanced 9-1-1/E9-1-1 (landline)</b>	A telephone system that includes network switching, database and PSAP elements capable of providing automatic location identification data, selective routing, selective transfer, fixed transfer, and a call back number. The term also includes any enhanced 9-1-1 service so designated by the Federal Communications Commission in its Report and Order in WC Docket Nos. 04-36 and 05-196, or any successor proceeding.
<b>First Responder Network Authority (FirstNet)</b>	An independent authority within the National Telecommunications & Information Administration (NTIA) created by the Middle Class Tax Relief and Job Creation Act of 2012 to provide emergency responders with the first nationwide, high-speed, broadband network dedicated to public safety.
<b>Geographical Information System (GIS)</b>	A system designed to capture, store, manipulate, analyze, manager, and present all types of geographical data.
<b>Next Generation 9-1-1 (NG911)</b>	NG 9-1-1 is an Internet Protocol (IP) based system comprised of managed Emergency Services IP networks (ESInet), functional elements (applications), and databases that replicate traditional E9-1-1 features and functions and provides additional capabilities. NG 9-1-1 is designed to provide access to emergency services from all connected communications sources, and provide multimedia data capabilities for Public Safety

<sup>20</sup> Some definitions taken from National Emergency Number Association (NENA), "NENA Master Glossary of 9-1-1 Terminology," NENA-ADM-000.18-2014, 07/29/2014.

	Answering Points (PSAPs) and other emergency service organizations.
<b>Public Safety Answering Point (PSAP)</b>	An entity responsible for receiving 9-1-1 calls and processing those calls according to a specific operational policy.
<b>Task Force on Optimal PSAP Architecture (TFOPA)</b>	This task force was created at the direction of the Federal Communications Commission (FCC) to examine the current structure and architecture of the nation's PSAPs in order to determine whether additional consolidation of PSAP facilities and architecture would promote greater efficiency of operations, safety of life, and cost containment, while retaining needed integration with local first responder dispatch and support.
<b>VoIP</b>	The FCC requires that providers of interconnected VoIP telephone services using the Public Switched Telephone Network (PSTN) meet Enhanced 911 (E911) obligations. The FCC requires VoIP providers to transmit all 9-1-1 calls, as well as a callback number and the caller's registered physical location, to the appropriate PSAP.
<b>Wireless E9-1-1 Phase 1</b>	Required by FCC Report and Order 96-264 pursuant to Notice of Proposed Rulemaking (NPRM) 94-102. The delivery of a wireless 9-1-1 call with callback number and identification of the cell-tower from which the call originated. Call routing is usually determined by cell-sector.
<b>Wireless E9-1-1 Phase 2</b>	Required by FCC Report and Order 96-264 pursuant to Notice of Proposed Rulemaking (NPRM) 94-102. The delivery of a wireless 9-1-1 call with Phase I requirements plus location of the caller within 125 meters 67% of the time and Selective Routing based upon those coordinates. Subsequent FCC rulings have redefined the accuracy requirements.
<b>9-1-1 System Service Provider (SSP)</b>	Provides systems and support necessary to enable 9-1-1 calling for one or more PSAPs in a specific geographic area. It is typically, but not always, an Incumbent Local Exchange Carrier (ILEC).

## Appendix A: NG 9-1-1 Five Year Cost Analysis

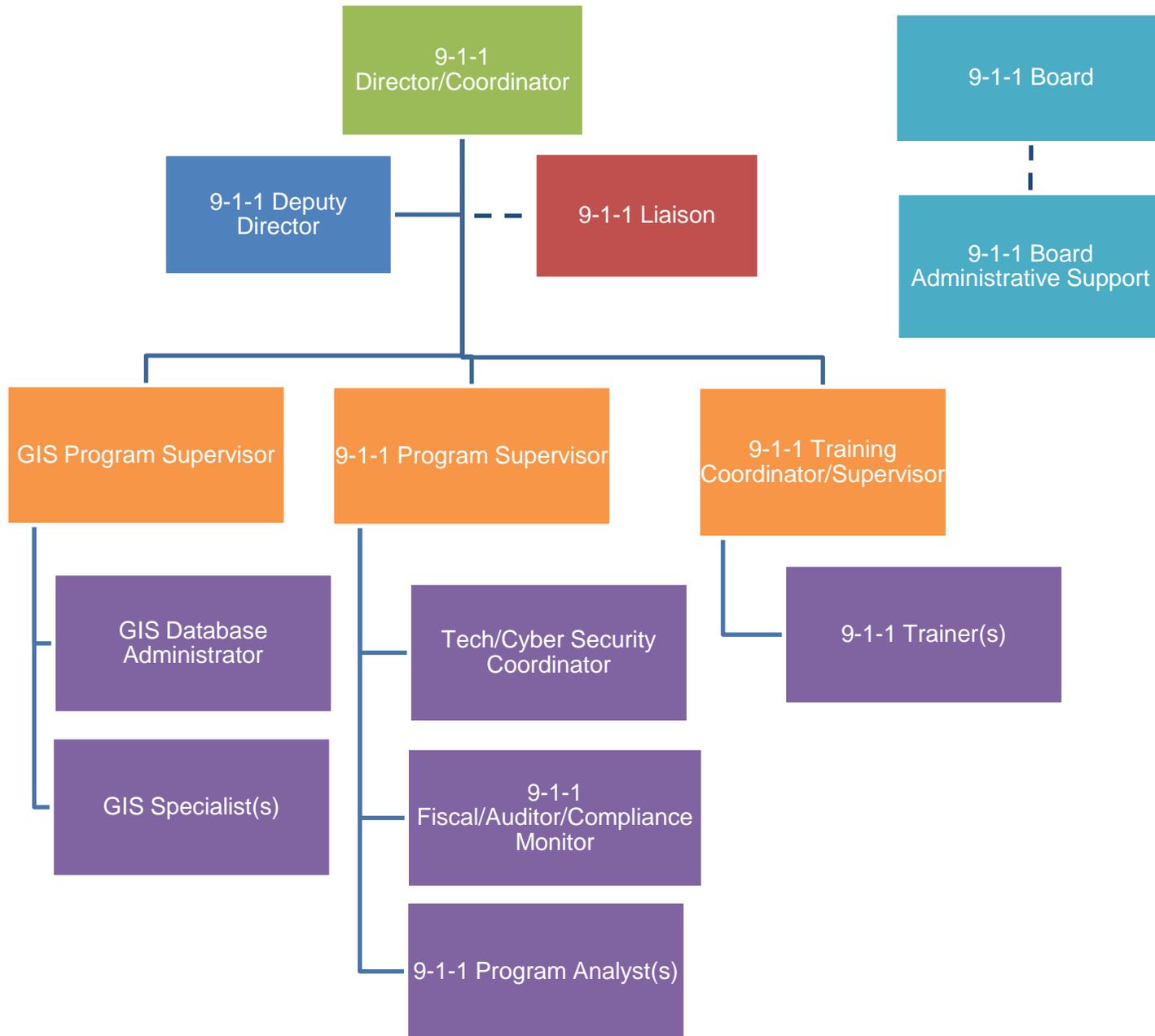
Funding Status		Current	Future	Current	Future
Funding Source		Bill and Keep	N/A	County Funded	N/A
PSAP Name	Seats	E9-1-1 Trunk Costs	E9-1-1 Trunk Costs	Wireless Costs	Wireless Costs
Clark County	3	\$490,788.00	\$ ---	\$37,440.00	\$ ---
Ozaukee County	4	\$591,192.00	\$ ---	\$82,476.60	\$ ---
Rock County	14	\$959,659.20	\$ ---	\$100,000.00	\$ ---
Waukesha County	21	\$2,292,403.20	\$ ---	\$254,031.60	\$ ---
Dane County	35	\$3,366,907.80	\$ ---	\$317,659.80	\$ ---

Funding Status		Current	Future	Current	Future	Current	Future		
Funding Source		N/A	TBD	County Funded	TBD	County Funded	TBD		
PSAP Name	Seats	NG 9-1-1 Network Costs	NG 9-1-1 Network Costs	Text to 9-1-1	Text to 9-1-1	CPE Equipment and Maintenance	CPE Equipment and Maintenance	Total 5 Year Savings	Total 1 Year Savings
Clark County	3	\$ ---	\$295,000	\$100,000	\$22,500	\$195,419	\$120,000	\$386,147	\$77,229
Ozaukee County	4	\$ ---	\$295,000	\$100,000	\$22,500	\$428,488	\$160,000	\$724,656	\$144,931
Rock County	14	\$ ---	\$295,000	\$100,000	\$22,500	\$1,039,127	\$560,000	\$1,321,286	\$264,257
Waukesha County	21	\$ ---	\$295,000	\$100,000	\$ 22,500	\$1,080,000	\$840,000	\$2,568,934	\$513,786
Dane County	35	\$ ---	\$295,000	\$100,000	\$ 22,500	\$1,200,000	\$1,400,000	\$3,267,067	\$653,413

### Notes:

- All costs are 5 year total cost calculations
- NG 9-1-1 Network and Text to 9-1-1 Costs are based on per site calculations
- State Hosted CPE Costs are based on per seat calculations
- 100% Participation in State Hosted CPE for the cost solution deviation of this would impact the cost structure
- State Hosted CPE is dependent on having a Statewide NG 9-1-1 ESInet in place
- State Hosted CPE Solution includes Workstations, IRR, GIS, Training, Maintenance, Installation
- State Hosted Solution and ESInet includes Text to 9-1-1 to each site and integration into the State Hosted CPE
- GIS is just included to route calls from the caller to the appropriate PSAP
- Currently only a couple of PSAP's have implemented Text to 9-1-1 solutions, so we have used an estimate of costs based on Waukesha County Emergency Management
- Current E9-1-1 Trunk Costs were generated from the Provider Data Request version 5-19-2016 supplied by the WSTA
- Cost Estimations were based on PSAP Survey Data collected by DOA in 2016 and use 109 PSAP's and 500 seats to do the pricing models
- NG 9-1-1 ESInet Architecture and State Hosted CPE and Text to 9-1-1 solutions were designed from other State RFP's, NG 9-1-1 Plans, and discussions with industry leaders
- All of the County Estimates for CPE Costs were from CPE equipment purchased in the past 3 years and were provided by the agencies

## Appendix B: 9-1-1 Office/Board



The preceding organizational chart outlines a statewide 9-1-1 office to coordinate, implement, and maintain a NG 9-1-1 program for the State of Wisconsin. The rationale behind this chart is based on several existing 9-1-1 programs throughout the nation including but not limited to Minnesota, Vermont, Tennessee, and Kansas.

This organizational chart is also based on existing administrative structures seen in Wisconsin departments and offices and **can be easily incorporated into a current state department**. All components to the organizational chart are essential to a successful NG 9-1-1 program.

Below is an explanation of the duties that should fall within the scope of a state 9-1-1 office and a brief description of each position:

**State 9-1-1 Office Duties:** The following duties typically fall within the scope of authority of a State 9-1-1 Office:

- Designates Statewide 9-1-1 Coordinator
- Provides public education on 9-1-1/NG 9-1-1
- Collects and shares information related to 9-1-1
- Develops/maintains State NG 9-1-1 Plan
- Provides Annual Report to Legislature
- Conducts audits/requires documentation from PSAPs receiving funds
- Provides technical assistance to local systems
- Assist locals with designing and implementing new system
- Provide training
- Maintains state GIS database
- Ensure cyber security standards (CJIS, etc.) are met
- Other potential duties (Office or Board):
  - Authority over funding – Office should have authority over baseline administrative costs while the Board should have authority over system costs, grants, etc.
  - Preparation of biennial budget
  - Procurement of NG 9-1-1 system and equipment
  - Authority to initiate legal action
  - Federal Grant Management/Ability to award grants to locals
  - Approve/Disapprove local NG 9-1-1 System Plans based on compliance

**9-1-1 Director/Coordinator:** Designated by Board

- Act as state point of contact for 9-1-1 information in Wisconsin
- Manage and coordinate duties that fall within the scope of authority of a State 9-1-1 Office
- Provide support and guidance in creation and implementation of State 9-1-1 Plan
- Review local and county 9-1-1 plans to ensure interoperability and standards compliance
- Implement decisions based on 9-1-1 Board authorization

**9-1-1 Deputy Director:**

- Provide direct supervision over various programs within the State 9-1-1 Office
- Convey and implement decisions of the 9-1-1 Director/Coordinator and 9-1-1 Board

**9-1-1 Liaison:**

- Serve as point of contact between PSAPs, the State 9-1-1 Office, and the Legislature
- This position can also be incorporated into another proposed position such as the 9-1-1 Director/Coordinator or the 9-1-1 Deputy Director

**GIS Program Supervisor:**

- Provides direct supervision over GIS program
- Implement GIS policies based on 9-1-1 Board decisions

**GIS Database Administrator:**

- Responsible for creating and maintaining a GIS database for 9-1-1 services
- This position can also be incorporated into the GIS Program supervisor position

**GIS Specialist(s):**

- Provide support to the GIS Database Administrator and/or GIS Program Supervisor

**9-1-1 Program Supervisor:**

- Provide direct supervision over the 9-1-1 program including technical/cyber security standards, fiscal, audit, compliance, biennial budgeting, grants management, etc.
- Implement program policies and fiscal decisions based on 9-1-1 Board authorization

**Tech/Cyber Security Coordinator:**

- Provides coordination of technical specifications and cyber security standards that will be essential to achieve interoperability and protect against cyber attacks on PSAPs

**9-1-1 Fiscal/Audit/Compliance Monitor:**

- This position can be split into several positions depending on workload and funding
- Provide fiscal and grants management support to the Office and Board
- Perform audits and compliance monitoring for PSAPs

**9-1-1 Program Analyst(s):**

- Provide support for 9-1-1 program including fiscal/grants planning, drafting annual reports, and maintaining program records, etc.

**9-1-1 Training Coordinator/Supervisor:**

- Provides direct supervision over 9-1-1 training program
- Implements training policies and standards based on 9-1-1 Board decisions

**9-1-1 Trainer(s):**

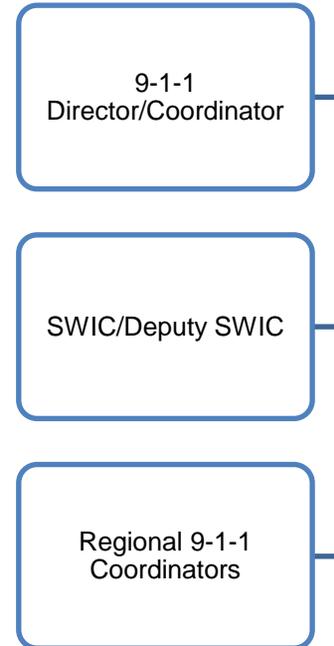
- Provide in-the-field training to local and county PSAPs based on training and standards policies set by the 9-1-1 Board

**9-1-1 Board Admin Support:** This position provides staff support (logistics, meeting notices, minutes, etc.) to the 9-1-1 Board. This position can either fall under the direct supervision of the State 9-1-1 Office or the 9-1-1 Board. This position could also be incorporated into another position such as 9-1-1 Program Analyst.

## State of Wisconsin 9-1-1 Board (Voting Members)



## Advisory Members (Optional)



The preceding outline demonstrates the potential membership of a State 9-1-1 Board. This outline is based on current membership of the 9-1-1 Subcommittee and other State 9-1-1 Boards. A State 9-1-1 Board would have the authority to:

- Review and approve Office's State NG 9-1-1 Plan
- Recommend 9-1-1 legislative changes when needed
- Oversee NG 9-1-1 implementation to ensure interoperability of local and county PSAPs and seamless transition from Wireless E9-1-1 to NG 9-1-1
- Develop and approve NG 9-1-1 policy, technical standards, operational guidelines/standards/rules, training standards, etc.
- Designate working groups or committees to address specific NG 9-1-1 issues as needed
- Other potential duties (Office or Board):
  - Authority over funding – Office should have authority over baseline administrative costs while the Board should have authority over system costs, grants, etc.
  - Preparation of biennial budget
  - Procurement of NG 9-1-1 system and equipment
  - Authority to initiate legal action
  - Federal Grant Management/Ability to award grants to locals
  - Approve/Disapprove local NG 9-1-1 System Plans based on compliance

**Eighteen (18) voting members should include:**

- Various state associations whose stakeholders are heavily involved in 9-1-1 (including WSTA, WI NENA, WI APCO, BSSA, WCPA, WSFCA, WEMSA, WCA, WLM, WLIA, and WEMA). PSC should also be included, specifically someone working actively with the 9-1-1 fee(s). Representation from the various associations would be designated by each individual association. (Totaling thirteen (13) individuals)
- Two (2) individuals representing different commercial mobile radio service providers (one serving primarily regional market and one serving a national market) as defined in §196.01(2)(g)
- One (1) individual representing a competitive local exchange carrier
- One (1) individual representing a VoIP provider
- One (1) individual representing a video service provider as defined in §196.01(12)(r)

**Advisory membership (optional) should include:**

- 9-1-1 Director/Coordinator
- Statewide Interoperability Coordinator (SWIC) to ensure interoperability is being achieved
- Regional 9-1-1 Coordinators (newly established)